

CHAPTER III RESEARCH METHOD

A. Research Design

This research uses quantitative method. It means this research tends to use numerical investigation and calculation. In this research quantitative method is used to find out whether there is significant difference of between students achievement who are taught without Cooperative Learning and Cooperative Learning at Seventh grade R3 and R2 in SMPN 4 Sampit Academic year 2017/2018. There are two variables used in this research, the independent variable and dependent variable. Variable is a concept where the subject stand variously in a class. The independent variable is Cooperative integrated reading and composition and the dependent variable the dependent variable is students' reading comprehension.

In experimental design, a pre-test is administered and followed by treatment to a number of different classes. After a fixed period of time, a post-test is given.

Based on the explanation above, the design of research can be seen in the following table.

Table 3.1 the design of the research

Experiment Class	Pre-Test (01)	Treatment	Post-test (03)
Control Class	Pre-test (02)	No treatment	Post-test (04)

In this research design, mainly is quantitative. It means the method and the instrument used numerical measurement and then statistical quantification is conducted. The writer uses quantitative design to analyze the quantitative data gained from test (pre-test and post-test).

B. Research Setting

The location of the research is in school at SMPN 4 Sampit, Jl. Ir. H. Juanda, Kecamatan Mentawa Baru Ketapang, Kabupaten Kota Waringin Timur. The researcher decided to choose

the seventh grade students of SMPN 4 Sampit because most of students had crucial problem in reading. The students got the difficulties in answering questions of reading text. This case proved that they didn't comprehend the text well. Most of them also felt bored in reading class. In this case caused most of them still had low achievement in reading comprehension.

C. Subject and Object

1. Subject of The research

The subject of this research were the students of the seventh grade at SMPN 4 Sampit academic year 2017/2018. It consisted of 32 students in class VII R2 as experiment class and 32 students in class VII R3 as control class.

Table 3.2 Class of the Research

No	Class	Number
1	Experiment Class (VII R2)	32
2	Control class (VII R3)	32

2. Object of The Research

The object of this research was the application of Cooperative Learning in students ability comprehension achievement of seventh grade students at SMPN 4 Sampit.

D. Data Collection Procedure

The technique of data collection used in this research were test, Observation, and documentary.

1. Test

This technique used to find out how significant the reading comprehension ability of the

students after and before given the treatments. In this way, the writer asked of the students to do some item test. Twenty items were chosen because they can cover enough all of the indicator that will be tested to measure students' reading comprehension. Every true answer 5 points. If all of the answer is true, the students get 100 points. The test applied in two stage; pre-test and post-test to both classes; control class and experiment class. There was the scheme for scoring the reading test.

2. Observation

Observation also used to collect data. That was about the while condition of activity during teaching learning process in classroom and also about the condition of the school included the facilitation of the school.

3. Documentary

Documentary used to get data about total members of students, teachers, administrative staff, facilities, and so on.

E. Data Analysis Procedure

After the test is given to the students in the pre-test and post-test, it will be tested. The test is focused on normality of the students' pre-test and post-test score. The result from the test will be analyzed first by the test of normality and test of homogeneity in SPSS 22. The data will be analyzed by assumption testing and hypothesis testing. The kind of assumption testing was normality test and homogeneous test. It is calculated due to know the next step of analyzing the data which whether using parametric test or non-parametric test.

1. Normality Test

Normality test is used to know whether the data come from the normal distribution or not. In this study, the writer tends to use SPSS version 22 to find out the normality of the data.

There are some outputs of test normality in SPSS 22 program such as Shapiro Wilks, Kolmogorov and Liliefors. In this research, writer used it because the sample number was included in small group or > 30 .

The criteria of determining the normality of the data was:

Hypothesis:

Ho: the data distributed normally

Ha: the data not distributed normally

- a. If t value was smaller than t table ($t \text{ value} < t \text{ table}$), it means that Ho was accepted and H1 was rejected
- b. If t value was greater than t table ($t \text{ value} > t \text{ table}$), it means that Ho was rejected and H1 was accepted

2. Homogeneity Test

Homogeneity test is used to know whether the data come from the homogeneous variance or not. To calculate the data, the researcher use SPSS version 22.

Homogeneity test liliefors test used to analyze two independent data that they have homogeny data or not. It is also the requirement test for parametric test. Homogeneity test used after the data had been analyzed by normality test and result is the distribution of data is normal so the homogeneity test should be done to continue the next step. But, if the result of normality test is not normal, the homogeneity test can be not used, because the next step of analysis data can make sure used the non-parametric analysis. According to Raharjo

(2016) explained in statistic non-parametric analysis that the variant of data can be homogeny and can be not. It is not a problem in paired sample test.

The criteria of determining the normality of the data was:

Hypothesis:

Ho: the data distributed homogeneity

Ha: the data not distributed homogeneity

- a. If t value was greater than t table ($t \text{ value} > t \text{ table}$), it means that Ho was accepted and H1 was rejected
- b. If t value was smaller than t table ($t \text{ value} < t \text{ table}$), it means that Ho was rejected and H1 was accepted

After tested the normality and homogeneity of the data, the writer in t-test the writer analyzes the data using comparative technique between the control and experiment class. The score of experiment class and control class in pre-test and post-test will be compared. This technique is very effective to show the result statistically. Then the result of the strategy is effective or not in improving reading comprehension.

To show differences, the writer uses t-test formula.

$$t_o = \frac{M_D}{SEM_D}$$

SEM_D

t_o = The value of t observation

M_D = Mean of difference

SEM_D = Standard Error of Mean of Difference

The procedure of calculating is as follows:

- a. Determining mean of variable x with the formula:

$$M_X = \frac{\sum}{N}$$

- b. Determining mean of variable y with the formula:

$$M_Y = \frac{\sum}{N}$$

- c. Determining Standard Deviation of variable x with formula:

$$SD_X = \frac{\sqrt{\sum X^2}}{N}$$

- d. Determining Standard Deviation y with the formula:

$$SD_Y = \frac{\sqrt{\sum Y^2}}{N}$$

- e. Determining Standard Error of variable x with the formula:

$$SE_{MX} = \frac{SD_x}{\sqrt{N_{1-1}}}$$

- f. Determining Standard Error of variable x with the formula:

$$SE_{My} = \frac{SD_y}{\sqrt{N_{1-1}}}$$

- g. Determining Standard Error of the different mean between variable x and variable y with the formula:

$$SE_{MX} - M_y = \sqrt{SE_{MX^2} + SE_{My^2}}$$

- h. Determining test observation with the formula:

$$t_o = \frac{M_x - M_y}{SE_{MX} - M_y}$$

$$SE_{MX} - M_y$$

- i. Determining T-Table in significance of level 5% with df.

$$Df = (N_1 - N_2) - 2$$

Explanation:

M_X : Mean of gain's score of experimental class

- M_y : Mean of gain's score of control class
- \sum_x : The total score of experimental class
- \sum_y : The total score of control class
- \sum_x^2 : The total score of the calculation score minus mean score of experiment class
- \sum_y^2 : The total score of the calculation score minus mean score of control class
- SD_x : The standard deviation of gain's score of experiment class
- SD_y : The standard deviation of gain's score of control class
- SE_{MX} : Standard error of mean of experiment class
- SE_{My} : Standard error of mean of control class
- N_1 : Total students of experiment class
- N_2 : Total students of control class

3. Statistical Hypothesis

A hypothesis is a tentative statement about the relationship between two or more variable. This research is designed to find out whether there is progress of using Cooperative Learning on students' reading achievement. In order to get the answer of that hypothesis, the writer proposed Alternative Hypothesis (H_a) and Null Hypothesis (H_0) which is described to the following statistical hypothesis.

1. $H_0 =$ If $t_{\text{test}}(t_{\text{count}}) < t_{\text{table}}(t_t)$ in significant degree of 0,05
2. $H_a =$ If $t_{\text{test}}(t_{\text{count}}) > t_{\text{table}}(t_t)$ in significant degree of 0,0